

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 87-163

SITE CLEANUP REQUIREMENTS AND RESCISSION OF  
ORDER NO. 85-107

SIGNETICS CORPORATION  
811 E. ARQUES AVENUE FACILITY  
SUNNYVALE, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. Signetics Corporation (hereinafter called the discharger) manufactures printed circuits at a facility located on 811 E. Arques Avenue, Sunnyvale.
2. Subsurface investigations initiated in early 1983 revealed significant levels of organic chemical pollution in soils and groundwater beneath the site. Initial soil concentrations were as high as 1,000 ppm. The current average groundwaters concentrations are 100 ppm near the source. Field data indicated that some of the pollution originated from a former waste solvent storage facility. Pollutants included trichloroethylene (TCE), Cis 1,2-dichloroethene, 1,1,1-trichloroethane (TCA), perchloroethene (PCE), Freon 113, xylenes, ethylbenzene, and dichlorobenzene.
3. Investigations undertaken by Signetics Corporation in cooperation with Advanced Micro Devices, Inc. (AMD) and TRW Microwave, Inc. (TRW) indicated that chemicals from all three sites had migrated in the groundwater to form a merged plume of pollution extending to a depth of 75 feet and a lateral distance of approximately 2,000 feet downgradient of the discharger's site.
4. On September 18, 1985, the Board adopted Order No. 85-107 prescribing Waste Discharge Requirements for TRW, AMD, and Signetics establishing tasks and a time schedule to complete definition of the extent of offsite pollution and implement interim remedial action. Modification of these requirements is needed to further address onsite pollution and to update the schedule to complete final investigations and remedial action.
5. The discharger has undertaken independent remedial action to address onsite pollution and has undertaken joint remedial action with AMD and TRW to address offsite pollution.

6. Onsite soil removal action consisted of the removal of an approximately 5,000 cubic yards of highly polluted soils. Additional studies are needed to more precisely define the extent of soil pollution and evaluate alternatives for remedial action.
7. Onsite groundwater cleanup action consisted of installing extraction wells and extraction trenches which currently remove about 100,000 gallons per day (GPD). The groundwater is treated with air stripping towers and carbon adsorbers and discharged to a storm drain tributary to Calabazas Creek and San Francisco Bay. Discharge is regulated by a NPDES Permit (Order No. 83-12) adopted by the Board on April 16, 1983.
8. The discharger has undertaken joint investigations with AMD and TRW to define the extent of pollution in the offsite downgradient areas. The offsite pollution plume has been adequately defined. Joint offsite remedial measures implemented to date include installation of nine offsite groundwater extraction wells along Duane Avenue to remove pollutants from A, B1, B2, B3 and B4 aquifers. The three companies are also in the process of installing additional hydraulic containment systems along Alvarado Avenue (approximately 1,500 feet north of Duane Avenue) and Highway 101 to prevent further pollutant migration north of Highway 101. Discharges from the Duane Avenue and Alvarado Avenue facilities are regulated by an NPDES Permit (Order No.85-034) adopted by the Board on April 30, 1985.
9. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 16, 1986. The Basin Plan contains water quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and groundwaters.
10. The existing and potential beneficial uses of the groundwater underlying and adjacent to the facility include:
  - a. Industrial process water supply
  - b. Industrial service supply
  - c. Municipal and Domestic supply
  - d. Agricultural supply
11. The discharger has caused or permitted, and threatens to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.

12. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
13. Interim containment and cleanup measures need to be implemented to alleviate the threat to the environment posed by the continued migration of pollutants and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup alternatives.
14. The Board has notified the dischargers and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.
15. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The discharger shall conduct monitoring activities as needed to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution. Should monitoring results show evidence of plume migration, additional plume characterization may be required.

C. PROVISIONS

1. The discharger shall submit to the Board technical reports on self-monitoring work performed according to a program prescribed by or amended by the Board's Executive Officer.
2. The discharger shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2. above, in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK:

- a. COMPLETION DATE: April 1, 1988

TASK: Submit a technical report satisfactory to the Executive Officer which evaluates the effectiveness of the existing onsite hydraulic containment system to prevent pollutant migration from the Signetics Corporation facility. Such an evaluation shall include, but need not be limited to, confirmation of the flow capture zone of the extraction wells, establishment of the cones of depression by field measurements, and presentation of chemical monitoring data. Specific modifications to the system and an implementation time schedule shall be proposed in the event that the hydraulic control system is demonstrated not to be effective in containing and cleaning up the onsite pollutant plume.

- b. COMPLETION DATE: February 1, 1988

TASK: Submit a technical report containing a summary of existing information that describes the source and the magnitude and extent of soil pollution and containing a detailed proposal, including Sampling and Analysis Plan, if needed to complete the definition of the extent of onsite soil pollution.

- c. COMPLETION DATE: June 1, 1988

TASK: Submit a technical report satisfactory to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for 2.b.

d. COMPLETION DATE: August 1, 1988

TASK: Submit a technical report satisfactory to the Executive Officer which evaluates the effectiveness of the hydraulic containment systems on Duane Avenue and Alvarado Avenue. Such an evaluation shall include, but need not be limited to, an estimation of the flow capture zone of the extraction wells, establishment of the cones of depression by field measurements, and presentation of chemical monitoring data. Specific modifications to the system and an implementation time schedule shall be proposed in the event that the hydraulic control system is demonstrated not to be effective in containing and cleaning up the offsite pollutant plume.

f. COMPLETION DATE: July 1, 1989

TASK: Submit a technical report acceptable to the Executive Officer containing the result of the remedial investigation; an evaluation of the installed interim remedial measures; a feasibility study evaluating alternative final remedial measures; the recommended measures necessary to achieve final cleanup objectives; and the tasks and time schedule necessary to implement the recommended final remedial measures.

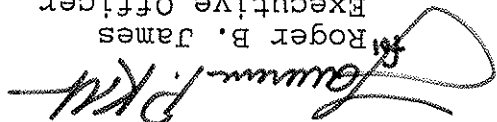
3. The submittal of technical reports evaluating proposed interim and final remedial measures will include a projection of the cost, effectiveness, benefits and impact on public health, welfare, and environment of each alternative measure. The remedial investigation and feasibility study shall be consistent with guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Superfund Amendments and Reauthorization Act of 1986; CERCLA/SARA guidance documents with reference to Remedial Investigations and Feasibility Studies; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California."
4. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the discharger(s) shall promptly notify the Executive Officer. In the event of such delays, the Board may consider modification of the task completion dates established in this Order.

5. Technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted monthly to the Board commencing on April 15, 1988. On a monthly basis thereafter, these reports shall consist of a brief letter report that, (1) summarizes work completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with Provisions of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order.
6. On a quarterly basis, commencing with on April 15, 1988, the technical report shall include, but need not be limited to, updated water table and piezometric surface contour maps. Pollution concentration contour maps for all affected water bearing zones, cross-sectional geological maps describing the hydrogeological setting of the site, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures shall be prepared as needed but at least semi-annually.
7. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer.
8. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
9. The discharger(s) shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.

10. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:
  - a. Santa Clara Valley Water District
  - b. Santa Clara County Health Department
  - c. City of Sunnyvale
  - d. State Department of Health Services/TSCD
  - e. Environmental Protection Agency
11. The discharger(s) shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
  - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
  - b. Access to copy any records required to be kept under the terms and conditions of this Order.
  - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
  - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
12. The discharger(s) shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.
13. If any hazardous substance is discharged in or on any waters of the State, or discharged and deposited where it is, or probably will be discharged in or on any waters of the State, the discharger shall report such a discharge to this Regional Board, at (415) 464-1255 on weekdays during officer hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-office hours. A written report shall be

14. This Order supercedes Order No. 85-107. Order No. 85-107 is hereby rescinded.
15. The Board will review this order periodically and may revise the requirements when necessary.
- incident, cause of spill, Spill Prevention, control and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons notified.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 16, 1987.

  
 Roger B. James  
 Executive Officer